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| EXAMINER |
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AHN, SAM K

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| ART UNIT | PAPER NUMBER |
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2637

DATE MAILED: 08/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/869,187

Applicant(s)

LUCIDARME ET AL.

Examiner

Sam K. Ahn

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>102601</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. For the formality of the application under the present office practice, applicant(s) is required to replace "Claims" with "I or We Claim", "The Invention Claimed Is" (or the equivalent) before the Claims part of the specification of the instant application. See MPEP 608.01(m).
2. Please rearrange the specification with the guideline set as below.
The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Objections

3. Claims 1-19 are objected to because of the following informalities:

- i. In claim 1, line 12, delete "send" and insert "send to".
- ii. In claim 1, line 15, delete "the said" and insert "said".
- iii. In claim 2, line 3, delete "the said" and insert "said".
- iv. In claims 2 and 11, lines 4 and 5, respectively, delete "different" and insert "said different".
- v. In claims 4 and 13, lines 5 and 6, respectively, delete "the".
- vi. In claim 4, line 13, delete "these" and insert "said".
- vii. In claims 5 and 14, lines 10, respectively, delete "and" and insert "and α is a real number", as described in the specification, p.13.
- viii. In claims 6 and 15, lines 2, respectively, delete "the".
- ix. In claims 6 and 15, lines 4, respectively, delete "an" and insert "said".
- x. In claims 8 and 17, lines 3 and 5, respectively, delete "the".
- xi. In claim 10, line 8, delete "equipment" and insert "control equipment".
- xii. In claim 10, line 10, delete "the base" and insert "the at least one base".
- xiii. In claim 10, line 14, delete "the control means" and insert "said means for control".

- xiv. In claim 10, line 21, delete "these" and insert "said at least two".
- xv. In claim 10, line 21, delete "the said" and insert "said".
- xvi. In claim 11, line 5, delete "the".
- xvii. In claim 13, line 14, delete "the".
- xviii. In claim 19, line 3, delete "which" and insert "the cellular network".
- xix. In claim 19, line 6, delete "the receiving" and insert "the at least two receiving".
- xx. In claim 19, line 8, delete "network" and insert "cellular network".
- xxi. In claim 19, line 10, delete "the".
- xxii. In claim 19, line 13, delete "certain of the" and insert "certain".

Claims 3,7,9,12,16 and 18 directly or indirectly depend on claim 1 or 10.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- 4. Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
 - i. In claims 1,10 and 19, lines 7,6-7 and 10-11, respectively, recite "at least two separate base stations". In line 3 of the claim recites "a set of base stations". It appears that the base stations of line 7 belong to the set of base stations recited in line 3.

- ii. In claim 1, line 11, recites "the base stations". Which base stations are being referred here?
 - iii. In claims 2 and 11, lines 4-5 and 4, respectively, recite, "the same base station". Which base station is being referred here?
 - iv. In claim 3,4,12 and 13 lines 2, 3, 2 and 3, respectively, recite "the base station". Which base station is being referred here?
 - v. Claims 3 and 12 recite the limitation "the information throughputs" in lines 8 and 9, respectively. There is insufficient antecedent basis for this limitation in the claim.
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- vi. In claims 9 and 18, lines 3-4 and 3, respectively, recite "first and second separate base stations". What is the relationship between the recited base stations with the base stations recited in claim 1, line 3?
- Claims 5-8 and 14-17 directly or indirectly depend on claim 1 or 10.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1,2,8,10,11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frodigh (US Pat. No. 6,381,458 B1, Frodigh et al.) in view of Teder (US Pat. No. 5,828,659, Teder et al.).

Regarding claims 1,2,8,10,11 and 17, Frodigh teaches a control equipment of a cellular-radio communications network (see Figs.1 and 2) comprising a set of base stations (300,310) and of mobile stations (320,330), in order, macrodiversity mode (or soft handoff, note abstract), to process respective radio signals sent out by at least two separate base stations and carrying identical information (206, and also note col.2, lines 41-51) , the equipment (315) comprising means for control of at least one base station for allocating, to the base station, radio communications resources for a down communications direction and for causing corresponding signaling messages to be sent to mobile stations served by this base station, (note col.4, line 51 – col.5, line 3) characterized in that said means for control are configured to cause a mobile station at least partially to dispense with the macrodiversity mode when the specified conditions are fulfilled (entering a cell boundary and comparing with predetermined threshold, note col.5, line 64 – col.6,line 18), while causing one or more of the base stations to send out, to the mobile station, at least two radio signals carrying different sets of information, and while causing the mobile station to have its receiving units process these radio signals so as to receive the said different sets of information. (note col.2, lines 52-65 and col.5, line 4 – col.6, line 18) Therefore, Frodigh teaches wherein the mobile station enters the area where two base stations are transmitting the

identical information to the mobile station, wherein the mobile goes to the macrodiversity mode, or soft handoff. Then, the mobile at some point in time terminates the connection with a first base station and monitors the surrounding base stations, while connected to the system, transmitting a different sets of information.

However, Frodigh does not explicitly teach wherein the mobile stations include at least two receiving units. Teder teaches in the same field of endeavor, a macrodiversity mode wherein the mobile station comprises plurality of receiving units. (see 62A, 62B in Fig.6 and Fig.9) Therefore, it would have been obvious to one skilled in the art at the time of the invention to include plurality of receiving units in Frodigh's teaching for the purpose of receiving different signals from plurality of base stations and process the mobile stations in a macrodiversity mode.

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6. Claims 3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frodigh (US Pat. No. 6,381,458 B1, Frodigh et al.) in view of Teder (US Pat. No. 5,828,659, Teder et al.) and Ovesjo (US Pat No. 6,542,484, B1, Ovesjo et al.).

Regarding claims 3 and 12, Frodigh in view of Teder teach all subject matter claimed. However, Frodigh in view of Teder do not teach in which the base station (13), in the case of the down communication direction, operates with multiple communications channels defined by channel-separation codes selected

from a set of codes with variable spreading factor in a defined range, the channel-separation codes being selected with spreading factors depending on the information throughputs required respectively on the channels, with an overall constraint of orthogonality between the codes employed at every instant by the base station. Ovesjo teaches in the same field of endeavor, macrodiversity mode teach in which the base station, in the case of the down communication direction, operates with multiple communications channels defined by channel-separation codes (Cspread, PDCH in Fig.2) selected from a set of codes with variable spreading factor in a defined range, the channel-separation codes being selected with spreading factors depending on the information throughputs required respectively on the channels, with an overall constraint of orthogonality between the codes employed at every instant by the base station. (note acol.3, line 22 – col.4, line 23) Therefore, it would have been obvious to one skilled in the art at the time of the invention to assign different codes to the base station of Frodigh for the purpose of reducing interference by the codes having orthogonality characteristics and also to increase the number of mobiles supported by the base station.

Allowable Subject Matter

7. Claims 4-7,9,13-16 and 18-19 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to

include all of the limitations of the base claim and any intervening claims, and overcome the claim objections.

8. The following is a statement of reasons for the indication of allowable subject matter:

Present application discloses a macrodiversity mode or soft handoff in a cellular system wherein the mobile station entering different cellular zones communicates with respective base station, wherein plurality of base stations are communicating with RNC. Mobile station change from macrodiversity mode to receive different information from each base stations when certain criteria is met. Closest prior art Frodigh, teaches all subject matter claimed. However, Frodigh does not teach

wherein the mobile station receiving radio signals carrying different sets of information from each base stations after meeting the three conditions as recited in claims 9 and 18. Frodigh further does not teach the relationship between the spreading factors and the codes used as recited in claims 4,5,13 and 14. And Frodigh does not explicitly teach deactivating the combining means. Therefore, prior art do not teach all the limitations claimed.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hottinen et al., US Pat. No. 6,353,638 B1, teach macrodiversity mode wherein the mobile station receives same information to combine.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Sam Ahn** whose telephone number is **(703) 305-0754**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Jay Patel**, can be reached at **(703) 308-7728**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

P.O. Box 1450

Alexandria, VA 22313-1450

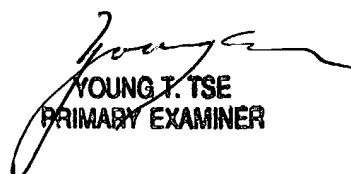
or faxed to:

(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Sam K. Ahn
8/19/04


YOUNG T. TSE
PRIMARY EXAMINER